

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>CF017636WO</b>	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. <b>PCT/JP03/13074</b>	International filing date (day/month/year) <b>10.10.03</b>	Priority date (day/month/year) <b>16.10.02</b>
International Patent Classification (IPC) or national classification and IPC Int.Cl <sup>7</sup> <b>H01L 31/04, C30B 29/06, C01B 33/02</b>		
Applicant <b>CANON KABUSHIKI KAISHA</b>		

<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of <u>3</u> sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of <u>2</u> sheets.</p>
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>

Date of submission of the demand <b>30.04.04</b>	Date of completion of this report <b>26.01.05</b>	
Name and mailing address of the IPEA/JP <b>Japan Patent Office</b> 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan	Authorized officer <b>Shoji HAMADA</b> Seal	<b>2K 9207</b>
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## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP03/13074

## I. Basis of the report

## 1. With regard to the elements of the international application:\*

- ☐ the international application as originally filed
- ☒ the description:  
pages 1-41, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☒ the claims:  
Nos. \_\_\_\_\_, as originally filed  
Nos. \_\_\_\_\_, as amended (together with any statement) under Article 19  
Nos. \_\_\_\_\_, filed with the demand  
Nos. 1-2, filed with the letter of 21.12.04
- ☒ the drawings:  
sheets/fig 1/1-3/3, as originally filed  
sheets/fig \_\_\_\_\_, filed with the demand  
sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

## 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

## 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/fig \_\_\_\_\_

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

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**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims	<u>1 - 2</u>	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	<u>1 - 2</u>	NO
Industrial applicability (IA)	Claims	<u>1 - 2</u>	YES
	Claims		NO

**2. Citations and explanations (Rule 70.7)**

D1: JP 10-98205 A (CANON KABUSHIKI KAISHA)

D2: Kishore et al, "Thin film solar cells from directionally solidified polycrystalline silicon doped with B, Al, Cu and C", Conference Record of the 19th IEEE Photovoltaic Specialists Conference, 1987, pages 1271 - 1274

**Claims 1-2**

D2 discloses a method of fabricating polycrystalline silicon ingots for a solar cell by directional solidification using electronic grade silicon and adding impurities, such as B or Al. Therefore, claims 1-2 are different from D2, only in terms of amounts of impurities of the starting material, i.e., in that the metallurgical grade silicon is used in claims 1-2, while, in D2, the electronic grade silicon is used.

However, since using metallurgical grade silicon as a starting material was well known in this art at the priority date of this application, as shown in D1 for example, it would have been obvious for a skilled person to use it.

Furthermore, it would have also been obvious for him, based on the teaching regarding the relationship between the amounts of impurities, such as B or Al, and solar cell's characteristics, such as efficiency, to select appropriate amounts of those impurities, depending on the impurities in the starting material.